Project Title:	Cost of Transporting People in New Jersey – Phase 2	
RFP NUMBER:		NJDOT RESEARCH PROJECT MANAGER: Abbas Hirya
TASK ORDER NUMBER::		PRINCIPAL INVESTIGATOR: Kaan Ozbay
Project Starting Date: 1/1/05 **Original** Project Ending Date:12/31/05 **Modified Completion Date:**		Period Starting Date:5/1/05 Period Ending Date:8/31/05

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search	5%%	100%	100%	5%
1. Kickoff Meeting	5%	0%	80%	4%
2. Identify Cost Models that need to be Improved and Data Availability	5%%	10%	60%	3%
3. Develop Guidelines and Mechanisms for a More Efficient Cost Database Structure	10%	10%	30%	3%
4. Enhance / Update Cost Models	30%	25%	50%	15%
5. Integration of Improved / Updated Cost Models with the Current Travel Demand Models Used by the NJDOT	30%	5%	5%	1.5%
6. Technology Transfer	10%			
Final Report	5%			
TOTAL	100%			31.5%

Project Objectives:
1. An effective and robust cost modeling tool will be developed.   This tool is useful for NJDOT planners to analyze and evaluate various scenarios and policy options. In addition, the tool will be Windows-GIS based, user-friendly and easy to use.
2. The GIS based cost modeling tool will be compatible with the existing travel demand models to assure the robustness of the model results. The novelty of the proposed cost modeling tool is in its integration with the existing travel demand models. This feature provides a dynamic approach in estimating the effect of the policy options on travel demand patterns.
3. Guidelines and mechanisms for a more efficient cost database structure will be developed because it is highly desirable to have a database structure that can be used to dynamically update the cost functions with new data, when available.
4. The costs models developed in the first phase of the project will be improved. The available data for each cost category will be determined. Since the duration of the project is not long enough to collect brand new data that is not readily available, the selection of cost categories to be updated will be based on the data availability.

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Project Abstract:
Cost of Transporting People in New Jersey was concerned with the development of Full Marginal Cost (FMC) model specific to New Jersey. Basically, the study attempted to provide an answer to the following question: "What is the cost of an additional trip in NJ highway network?" Methodological and experimental steps followed to answer this question in Phase 1 of this project can be summarized as follows:

1. Four (4) highway transportation cost categories were determined. These were:
2. User costs (Vehicle operating, congestion, accident),
3. Infrastructure costs
4. Environmental (Air pollution and noise) costs.

Marginal cost functions of each cost category were estimated using the available local and national data. Vehicle operating, accident and infrastructure cost functions were developed using NJ specific data, whereas congestion, and environmental cost functions were developed using the available national data. One-Route Marginal Cost (ORMC) methodology was developed and coded using *Avenue* computer language. *Avenue* is an object-oriented programming language used to create user interface for **Arc-View GIS** software. ORMC methodology estimates the marginal cost of a trip between a selected origin-destination (O-D) pair along the shortest route. Estimated ORMC values for selected O-D pairs are classified based on trip distance, time of the day, highway functional type and urbanization degree. These results are presented in the Phase 1 Project report

The Phase 1 of this project was a preliminary step towards developing a "dynamic" tool for policy makers and analysts to estimate the FMC of transporting people in NJ. The methodology behind this dynamic tool differs from the traditional static approaches that have been commonly used by the government agencies. Proposed tool will be capable of capturing the relationship between the various cost categories at various demand levels for a number of roadway infrastructure properties, as they change over time. This dynamic aspect of the proposed model will allow the policy makers to determine the prevailing costs under various scenarios, and will be extremely useful in understanding the effects of different policy decisions. It should be noted that the cost functions developed specifically for this project are also useful for other applications such estimating maintenance costs and construction costs of a roadway, estimating congestion and environmental costs.

1. Progress this quarter by task:
Tasks 1 & 2: A meeting with David Schellinger of URS Greiner is on June 2nd, 2005. This meeting was the first meeting to exchange information about the output of the NJDOT planning model and the input needs of our cost models. As a result of this meeting, on July 8th, we obtained North Jersey planning model related network and dataset from NJTPA. An assessment of new data available on the NJDOT web site and other related web sites is made to determine possible improvements that can be made to the models. On July 7th, we also met with Abbas Hirya to obtain new cost related data from NJDOT intranet. We downloaded from his computer related data and we are now in the process of studying the obtained data set.

Task 3: We revisited the previously developed cost functions and worked on the development of a software structure to estimate them. We developed a software implementation plan for the individual cost functions given the network database we have obtained on July 8th. We have also tested the individual cost function using the new network data to identify possible problems.
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Task 4: As part of this task, we devised an enhanced cost estimation approach for all the trips between each OD pair over a number of paths other than the shortest path. . This will be a major improvement over the single path cost estimation method used in the previous Phase of this project. We also met with the NJDOT project manager, Abbas Hirya, on the 25th of August and briefed him about mainly Tasks 4 and 5. We also demonstrated the modified dataset using Arc View and the software implementation of the new multi-path cost estimation method.

Task 5: As part of this task we decided to use Arc-View as the software development platform. We completed the first version of the program that computes costs over a fixed number of paths between each selected O-D pair. This is the stand-alone version (V 0.1) of the cost estimation tool. We are now working on integrating it with Arc-View. On the 25th of August meeting, we gave NJDOT project manager a technical report (memorandum) that describes our efforts and findings so far.

2. Proposed activities for next quarter by task
Task 2: Complete the meeting with NJDOT consultants namely Gary Davis of Urbitran, to understand the South Jersey network and planning model.
Task 3: Re-estimate, I needed, any of the cost functions based on the new NJDOT data.
Tasks 4 & 5: Finalize initial Arc View software implementation of the enhanced cost estimation methodology. This will be e the second version (V 0.2) of the prototype application of the cost estimation tool. Demonstrate it to NJDOT to get feedback.
Task 6 / Final Report: Prepare a technical memorandum that summarizes our findings.

3. List of deliverables provided in this quarter by task (product date)

Technical memorandum that describes our progress delivered for review on the 25th of August.

4. Progress on Implementation and Training Activities

5. Problems/Proposed Solutions
1. We received the contract from UTRC yet and started charging the project.
2. A meeting with Gary Davis of Urbitran could still not be scheduled but efforts are being made to arrange this meeting too.
3. After meeting with the NJDOT consultants, we will expedite the work on tasks 3 and 5, because the final product depends heavily on its integration with the NJ Planning mode. This is mainly due to the fact that our application will use the output from these planning models and we need to be able to integrate it with the output of the planning models.

Total Project Budget	
Modified Contract Amount:	
Total Project Expenditure to date	
% of Total Project Budget Expended	%

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